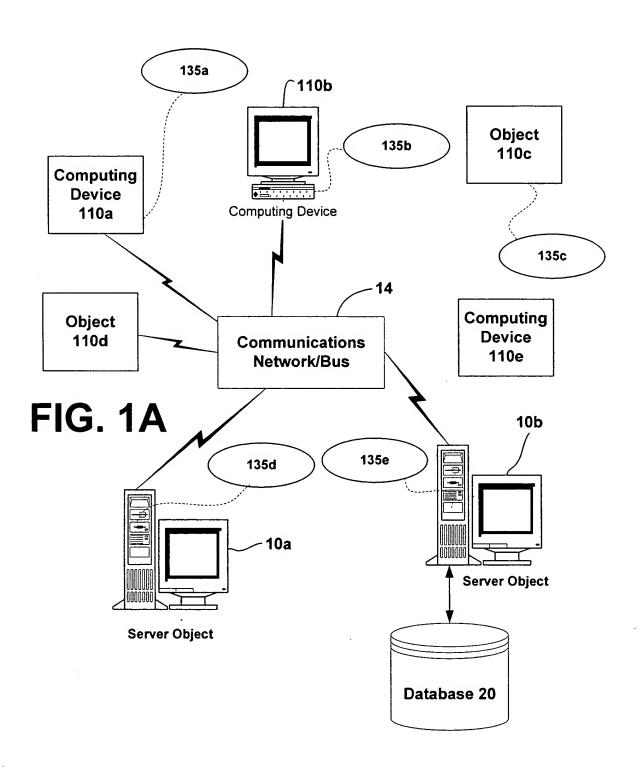
App. No.: Not yet assigned Filed: September 30, 2003
Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson Phone: (215) 568-3100

Sheet 1 of 11



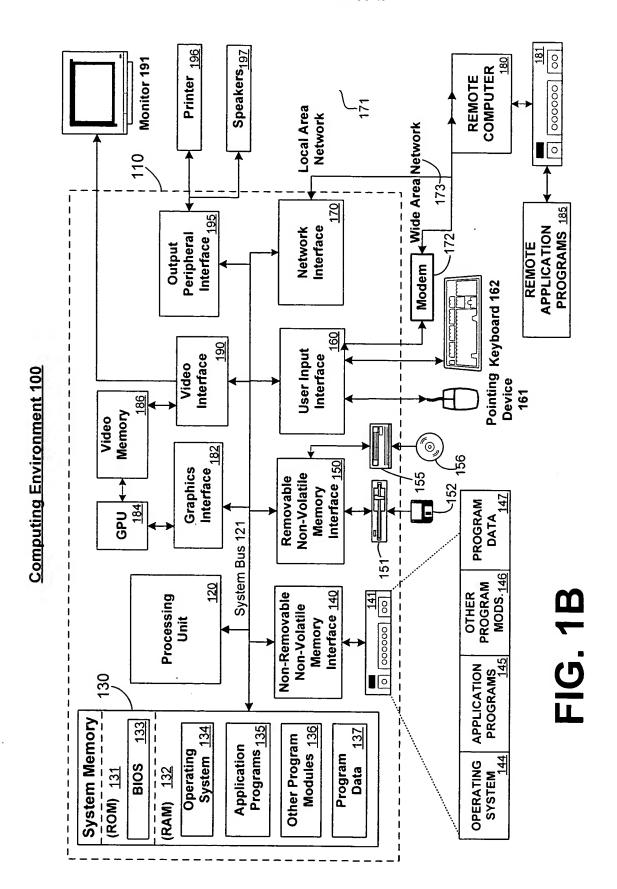
Attorney: Thomas E. Watson

App. No.: Not yet assigned Filed: September 30, 2003
Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Phone: (215) 568-3100

Sheet 2 of 11



App. No.: Not yet assigned Filed: September 30, 2003
Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson Phone: (215) 568-3100

Sheet 3 of 11

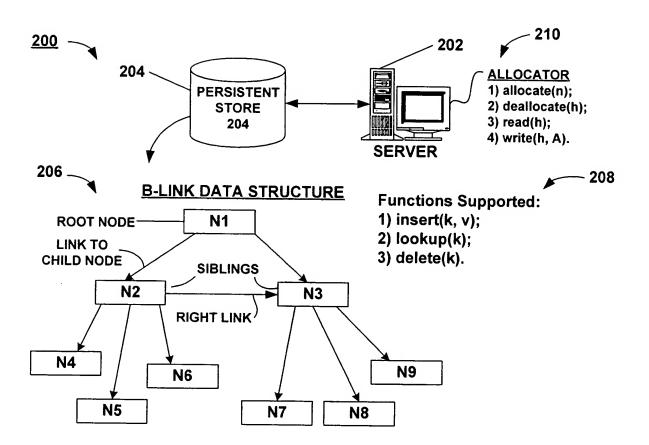


FIG. 2A (PRIOR ART)

App. No.: Not yet assigned Filed: September 30, 2003
Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson Phone: (215) 568-3100

Sheet 4 of 11

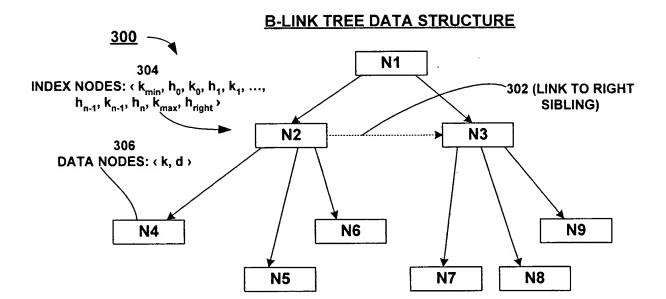


FIG. 2B (PRIOR ART)

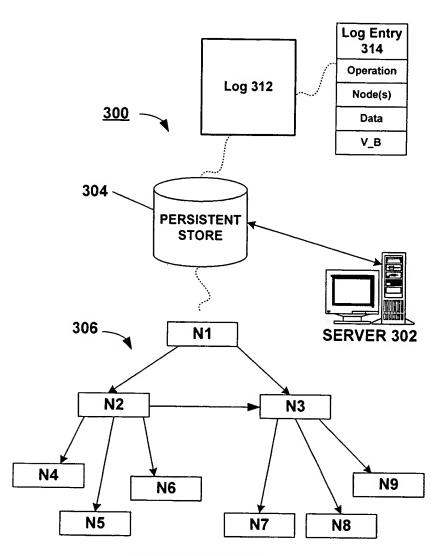
App. No.: Not yet assigned Filed: September 30, 2003

Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson Phone: (215) 568-3100

Sheet 5 of 11



DATA STRUCTURE

FIG. 3A

App. No.: Not yet assigned Filed: September 30, 2003 Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson Phone: (215) 568-3100

Sheet 6 of 11

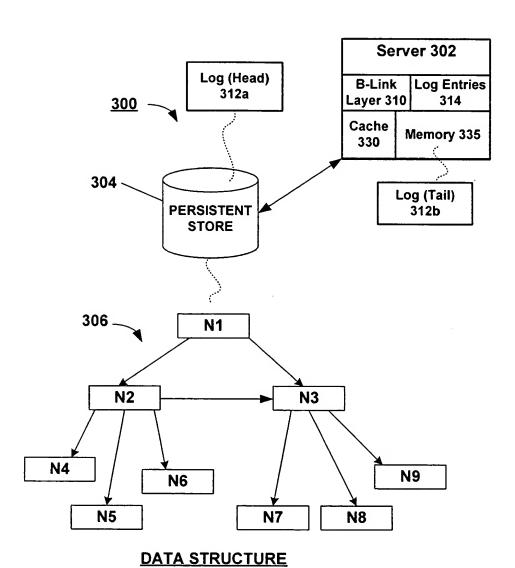


FIG. 3B

App. No.: Not yet assigned Filed: September 30, 2003
Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson Phone: (215) 568-3100

Sheet 7 of 11

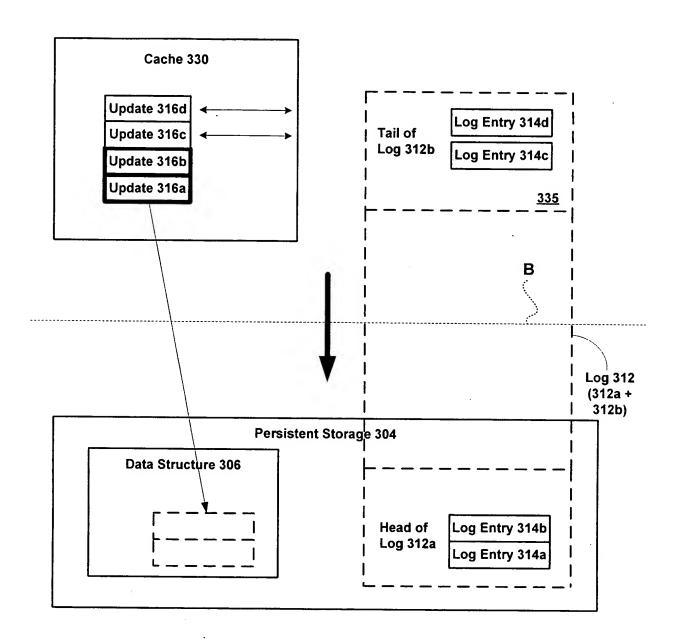


FIG. 3C

App. No.: Not yet assigned Filed: September 30, 2003

Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou Attorney: Thomas E. Watson

Phone: (215) 568-3100

Sheet 8 of 11

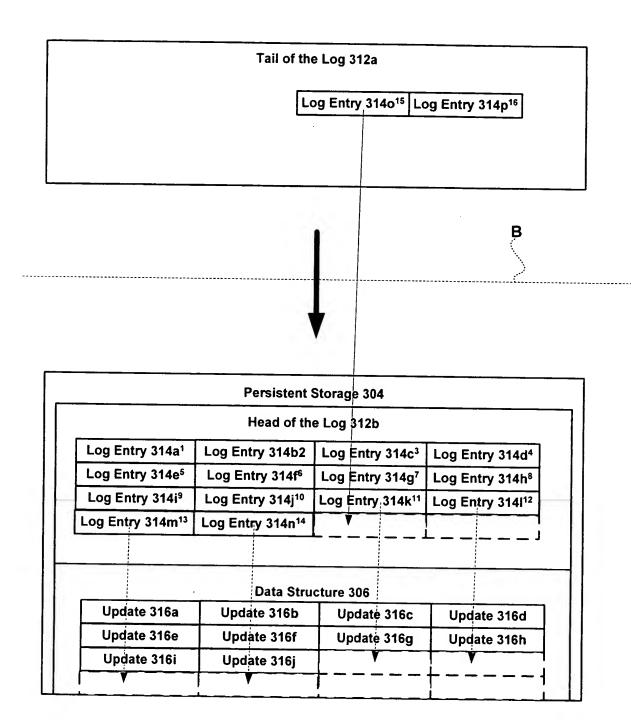


FIG. 3D

App. No.: Not yet assigned Filed: September 30, 2003

Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson

Phone: (215) 568-3100

Sheet 9 of 11

List 322

Data entry_a	Data entry_b	Data entry_c	Data entry_d
Data entry_e	Data entry_f	Data entry_g	Data entry_h
Data entry_i	Data entry_j		

Persistent Storage 304

Log 312

Log Entry 314a ¹	Log Entry 314b ¹	Log Entry 314c ³	Log Entry 314d ⁴
Log Entry 314e ⁵	Log Entry 314f ⁶	Log Entry 314g ⁷	Log Entry 314h ⁸
Log Entry 314i ⁹	Log Entry 314j ¹⁰	Log Entry 314k ¹⁰	Log Entry 314I ¹⁰
Log Entry 314m ¹⁰	Log Entry 314n ¹⁰		

Data Structure 306

Update 316a	Update 316b	Update 316c	Update 316d
Update 316e	Update 316f	Update 316g	Update 316h
Update 316i	Update 316j		
		T	<u> </u>

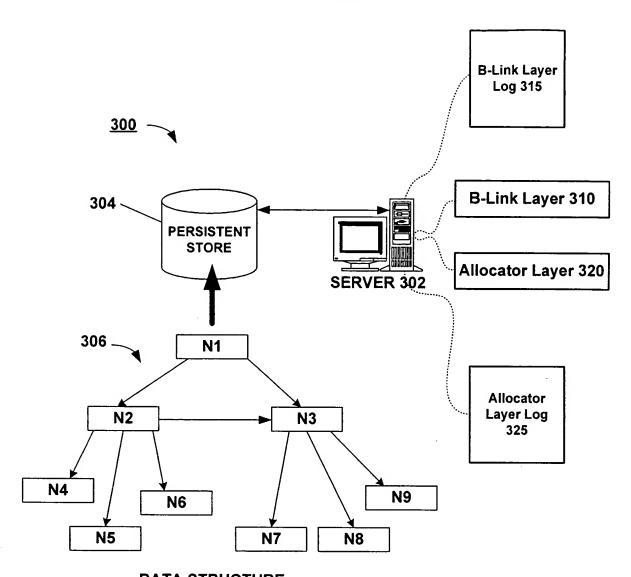
FIG. 3E

App. No.: Not yet assigned Filed: September 30, 2003
Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson Phone: (215) 568-3100

Sheet 10 of 11



DATA STRUCTURE

FIG. 3F

App. No.: Not yet assigned Filed: September 30, 2003
Title: Systems and Methods for Logging and Recovering Updates to Data Structures

Inventors: Marc A. Najork, Chandramohan A. Thekkath, Lidong Zhou

Attorney: Thomas E. Watson Phone: (215) 568-3100

Sheet 11 of 11

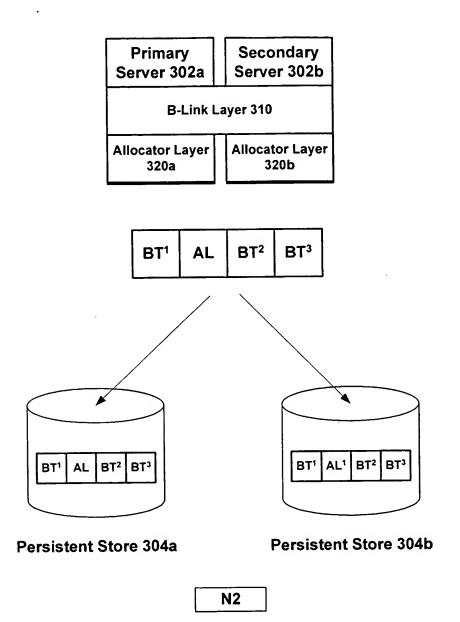


FIG. 4